

Remarks

The Applicants have amended Claim 1 to recite that the high-breaking elongation layer is placed on the lower strength FRP layer. This is illustrated in Fig. 37, for example.

The Applicants have amended Claims 4, 5 and 6 to correct minor typographical errors.

Claim 24 has been amended to recite that the discontinuous part of a reinforcing fiber substrate is provided on at least one reinforcing fiber substrate layer of the lower strength FRP layer. This is illustrated in Fig. 22, for example.

Claims 29 and 30 have been cancelled.

Entry of the above amendments and cancellations and consideration on the merits is respectfully requested.

Claims 24-32 stand rejected under 35 USC §112 as being indefinite. The Applicants note with appreciation the Examiner's detailed comments with respect to Claims 29 and 30 and the lack of antecedent basis. Those claims have been cancelled, thereby rendering the rejection moot. Withdrawal of the rejection is respectfully requested.

Claims 1-6, 8-10, 13 and 19-33 stand rejected under 35 USC §103 over the combination of JP '252 with JP '846. Similarly, Claims 24-28, 31 and 32 stand rejected under 35 USC §103 over the combination of JP '856 with JP '846.

Before proceeding to the cited references, the Applicants would like to provide some explanatory comments about impact energy absorbing property and impact resistance. First, the difference between the impact energy absorbing property of an FRP panel being good and the impact resistance (strength) being high will be described.

The impact energy “absorbing” property in the field of automobiles means how much the energy received at the time of collision can be “consumed” by being converted into another energy, or how much it can be “accumulated” without being released.

In order that a fiber reinforced plastic member has an impact energy absorbing property, because it does not cause a permanent deformation ascribed to plasticity such as in metal, it is necessary to consume the energy by converting the energy into energy such as a sound or heat by breaking it.

Therefore, for example, when an automobile collides with a pedestrian, if energy is “accumulated” by deformation of the FRP panel without breaking thereof, the accumulated energy is released after the collision (namely, the energy is “consumed” toward the pedestrian), and great damage may be caused to the pedestrian.

On the other hand, the impact resistance means a property for resisting an impact. Namely, it means a state having a high strength accompanying no breaking even if a high impact force is received. Therefore, the impact energy absorbing property being good and the impact resistance (strength) being high are distinguished from each other.

We now turn to the cited references. In JP ‘846, although there is a description as to an FRP panel having sufficient rigidity, etc., there is no description with respect to an FRP panel which is broken by collision with a pedestrian. Specifically, there is no description with respect to impact energy absorption.

In JP ‘252, although there is a description of an FRP panel having a high rigidity even against a local collision due to an external force and the like, there is no description with respect to an FRP panel which is broken by collision with a pedestrian. Specifically, there is no description with respect to impact energy absorption.

In JP '856, to allow the deformation of the hood at the time of collision to be able to solve “unbalance or mismatching in deformation” between the vehicle body and the hood at the time of collision (paragraph [0004]) or to be able to solve the problem that the hinge or striker is damaged (paragraph [0005]), a cutting layer provided with a cutting line is provided. Further, to prevent breakage “even if at last the FRP layer has reached breakage,” a breakage preventing layer (Claim 3) is provided (paragraph [0015]). Specifically, the FRP panel of JP '856 does not reach breakage as a whole.

On the other hand, the Applicants provide an FRP layer having a crushable structure capable of absorbing (releasing) an impact energy (Applicants' specification paragraph [0005]). Since “to suppress an impact by properly absorbing the impact to a pedestrian at the time of collision from the viewpoint of protecting the pedestrian” (Applicants' specification paragraph [0005]) can be achieved by forming a part easily colliding with a pedestrian as a crushable structure, thereby positively absorbing (releasing) an impact energy, the pedestrian is not transmitted with the impact energy and the pedestrian is protected.

The Applicants' Claims 1 and 24 recite, respectively, 1) a high breaking elongation layer and 2) a discontinuous part provided to a lower-strength layer. To be a lower-strength layer is irrelevant with whether it is crushable or not, and it is merely relative comparison with a strength of the other FRP layer. By intentionally forming the lower-strength layer side as a crushable structure, it becomes more crushable, namely, impact energy is easily absorbed (released).

Concretely, 1) if the high breaking elongation layer has a crushable structure, as described in the Applicants' specification paragraph [0056] “because the high breaking elongation layer 233 or 236 holds the load even after the FRP layer 232 or 235 with a lower elongation is broken, the impact energy can be absorbed more properly,” the crushing is caused

from the lower elongation FRP layer, thereby absorbing (releasing) the impact energy. Also, 2) as to the discontinuous part, the crushing is caused from the discontinuous part, thereby absorbing (releasing) the impact energy.

The Applicants therefore respectfully submit that one skilled in the art would have no motivation to make the combination specified in the two rejections because there is no motivation to do so based on the problems that the Applicants were attempting to address, particularly given the failure of the primary and secondary references to disclose, teach or suggest impact energy absorption. Further, the discontinuous part described in JP '856 is also a structure that does not allow the whole of the FRP panel to reach breakage because the purpose and subject of that disclosure is different from the objectives of the Applicants. Thus, one skilled in the art would not combine JP '856 with JP '846. Withdrawal of both rejections is respectfully requested.

Claims 11-17 stand rejected under 35 USC §103 over the further combination of Fujimoto with JP '846 and JP '252. Similarly, Claims 29 and 30 stand rejected under the further combination of Raghavendran with JP '846 and JP '856. The Applicants respectfully submit that both of Fujimoto and Raghavendarn fail to cure the deficiencies set forth above with respect to JP '252 combined with JP '846 and JP '856 combined with JP '846. Withdrawal of both rejections is accordingly respectfully requested.

In light of the foregoing, the Applicants respectfully submit that the entire Application is now in condition for allowance, which is respectfully requested.

Respectfully submitted,

A handwritten signature in black ink, appearing to be 'T. Daniel Christenbury', written in a cursive style.

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